



DLA Piper LLP (US)
1201 N Market St Suite 2100
Wilmington, DE 19801

Brian Biggs
Brian.biggs@us.dlapiper.com

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VIA ECF & EMAIL

[REDACTED]

The Honorable Maryellen Noreika
U.S. District Court for the District of Delaware
844 N. King Street, Unit 19, Room 4324
Wilmington, DE 19801-3555

Re: *Advanced Cluster Systems, Inc. v. NVIDIA Corp.*, 1:19-cv-02032-MN-CJB (DDE)

Dear Judge Noreika,

Defendant NVIDIA requests leave to file a motion for summary judgment (“MSJ”) to address the patent infringement claims brought by Plaintiff Advanced Cluster Systems (“ACS”). NVIDIA also seeks leave to file a *Daubert* motion to exclude the opinions of ACS’s damages expert. To provide the Court as much time as possible, NVIDIA is filing this request after service of opening expert reports but before service of reply reports and completion of expert discovery.

Motion for Summary Judgment. The parties already resolved three of the four originally asserted patents. The asserted claims of the remaining ’768 patent are directed to a computer cluster. Among the claims’ many limitations, the computer cluster must include three nodes that are “configured to” perform a specific multi-step process and that each have access to “program code for a single-node kernel.” Because the accused products do not practice these limitations as a matter of law, NVIDIA seeks leave to file an MSJ of noninfringement that would dispose of the case. If that MSJ is not granted, NVIDIA also seeks leave to file partial MSJs addressing two discrete issues that would narrow the case for trial.

First, the accused products are not “configured to” practice the claimed multi-step process. The claims require three nodes “configured to” perform a precise multi-step process in which each node is required to perform specified actions and communicate with other nodes in a specified manner. *See Ex. A* (’768 patent), at 30:36–60 (claim 1), 32:46–33:3 (claim 26). The NVIDIA accused products are not “configured to” perform this process.

Without any evidence of infringement, ACS’s expert, Dr. Singh, points to two sample software programs that were available on the web, simpleP2P and simpleCUFFT. *E.g.*, Ex. B (Singh Report), ¶¶ 184–99. But it is undisputed that, as sold, the NVIDIA products are not programmed with this software. Moreover, the two programs are sample source code (not executable code) that were first distributed long before the ’768 patent issued, and ACS has presented no evidence that anyone (including any NVIDIA customer) has programmed that code into an accused device since the patent issued. Furthermore, none of the software cited by ACS practices the entire claimed process. For example, neither the cited software library (cuFFT) nor the two cited sample programs (simpleP2P and simpleCUFFT) returns the specific recited result to a user interface or script.



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ACS tries to sidestep these gaping holes in its infringement claim by pursuing an incorrect claim construction that improperly seeks to stretch the “configured to” limitations to cover any system that could—in theory—be *modified* by programming with software allegedly practicing the claim limitations. Ex. B, ¶¶ 232–33, 268–79. This construction contradicts Federal Circuit precedent regarding “configured to” claims. D.I. 296 (Jt. Cl. Constr. Br.) at 20–21, 73–74, 78–80. Even under a broader “capable of” claim construction, the asserted claims still would require that “the accused computer-implemented device is programmed or otherwise configured, *without modification*, to perform the claimed function when in operation,” which undisputed evidence establishes is not the case here. *INVT SPE LLC v. Int'l Trade Comm'n*, 46 F.4th 1361, 1365 (Fed. Cir. 2022) (emphasis added). Ex. B, ¶¶ 262, 276–78.

Accordingly, NVIDIA should be granted summary judgment of no direct infringement for any of its sales. NVIDIA also should be granted summary judgment of no direct infringement for any alleged “use” because ACS does not cite any use that would practice all claim limitations. Similarly, NVIDIA should be granted summary judgment of no indirect infringement because ACS has not cited evidence that any NVIDIA customer directly infringes. *Parallel Networks Licensing, LLC v. Microsoft Corp.*, 777 Fed. Appx 489, 493–94 (Fed. Cir. 2019) (affirming summary judgment of no indirect infringement due to no direct infringement by customers).

Second, under the correct construction of “single-node kernel,” there is no infringement. All asserted claims require “program code for a single-node kernel.” The “kernel” is the “interpreter” that allows a device that would not otherwise be part of a computer cluster to be augmented with cluster functionality. D.I. 269, at 3–5, 7–8. Specifically, the “kernel” is “program code for interpreting high-level code, commands, and/or instructions supplied by a user or a script into low-level code, such as, for example, machine language or assembly language.” Ex. A ('768 patent), at 23:9–12.

As detailed in the claim construction briefing, the Court should adopt NVIDIA’s construction, which accurately captures the ordinary meaning of this claim term using language directly from the specification. D.I. 269, at 3–5, 7–8. In contrast, ACS proposes construing “kernel” as “program code,” which would result in a claim that would recite “program code for a single-node [program code]” and thus improperly read “kernel” out of the claim. D.I. 269, at 3–5.

Under NVIDIA’s construction of “kernel,” there is no infringement because the accused code is not an “interpreter” and does not convert high-level inputs into low-level code. ACS does not identify contrary facts, but instead offers only conclusory assertions that merely repeat NVIDIA’s construction, *e.g.*, “[t]he CPU portion of a CUDA program is a kernel under NVIDIA’s proposed construction because it is [insert verbatim NVIDIA’s proposed claim construction].” Ex. B, ¶¶ 226–27. “A party may not avoid summary judgment simply by offering an opinion of an expert that states, in effect, that the critical claim limitation is found in the accused device.” *SIMO Holdings Inc. v. Hong Kong uCloudlink Net. Tech. Ltd.*, 983 F.3d 1367, 1380–81 (Fed. Cir. 2021).



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Third, NVIDIA also seeks partial summary judgment on two discrete issues that would streamline the case for trial, if needed:

(A) NVIDIA should be granted partial summary judgment of no pre-suit indirect or willful infringement. Both indirect and willful infringement require “knowledge of the patent-in-suit.” *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1926 (2015). Here, it is undisputed that NVIDIA did not have knowledge of the patent-in-suit before the complaint. ACS’s sole basis for claiming pre-suit knowledge is an alleged November 2012 conversation between the named inventors and an NVIDIA employee at a conference in which patents were not discussed, (Ex. E (Tannenbaum Tr.), at 216:5–13), and a 2012 follow-up email containing a datasheet that said “patents pending.” Ex. D (Datasheet). These both occurred more than a year before the patent application was filed and thus did not, and could not have, provided the required knowledge of the patent-in-suit. *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985) (“Patent Pending” “give[s] one no knowledge whatsoever.”). *See also Intuitive Surgical, Inc. v. Auris Health, Inc.*, 549 F. Supp. 3d 362, 378 (D. Del. 2021) (dismissing pre-suit willful allegation based solely on alleged knowledge of asserted patent); *DoDots Licensing Sol. v. Lenovo Holding Co.*, 18-cv-098-MN, 2019 WL 3069773, at *4 (D. Del. July 12, 2019) (dismissing pre-suit induced infringement where plaintiff failed to show actual knowledge of the asserted patent).

(B) As a matter of law, the asserted claims are not entitled to a priority or invention date before October 11, 2006. The asserted claims are not entitled to the ’738 provisional application’s priority date. For asserted claims to benefit from the priority date of a provisional application, the provisional must teach all limitations of the asserted claims. *Dynamic Drinkware, LLC v. Nat. Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Here, the ’738 provisional (U.S. Provisional Patent App. 60/813,738) is just a two-page research plan lacking support for many claim limitations: there is no discussion of any “hardware processor,” “processing cores,” or “memory;” no mention of a first, second, or third node; and nothing describing the required order of operations between nodes. *See* Ex. G (’738 provisional); *Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870 (Fed. Cir. 2010).

ACS also cannot claim a conception date before the ’768 patent application filing date because ACS lacks corroborating written evidence. *Apator Miitors ApS v. Kamstrup A/S*, 887 F.3d 1293, 1296 (Fed. Cir. 2018). Although ACS argues several documents support its earlier conception date (*see* Ex H (Interrog. Resp. No. 1) at 14–17 (citing Exs. I–X)), none shows “every limitation [was] known to the inventor at the time of the alleged conception” as required by the Federal Circuit. *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985).

Accordingly, NVIDIA seeks leave to file an MSJ to address these issues.

Daubert Motion. The opinions of ACS’s damages expert, Mr. Bone, should be excluded as they are rife with errors and fail to “sufficiently tie proof of damages to the claimed invention’s footprint in the market.” *Exmark Mfg’g Co. v. Briggs & Stratton Power Prods. Grp.*, 879 F.3d 1332, 1350 (Fed. Cir. 2018). As a result, Mr. Bone’s \$280 million damages calculation grossly exaggerates the alleged contribution of the claimed invention to the accused products.



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First, Mr. Bone's damages opinions are based incorrect claim constructions. An expert may not base opinions on erroneous claim constructions. *Minerva Surgical v. Hologic*, 18-cv-0217, 2021 WL 3048447, at *8 (D. Del. July 20, 2021). Mr. Bone does not give alternative opinions based on different constructions, but instead bases his analysis solely on ACS's constructions. For example, the linchpin of Mr. Bone's damages calculations is a distinction between two ways of connecting processors: NVLink and PCIe. Ex. C (Bone Report), ¶ 181, Tables 11–13; *id.*, ¶¶ 39–43. This distinction is based on ACS's proposed construction of “peer-to-peer architecture,” which previously was rejected by the Patent Office and should be rejected here too because it is contrary to the ordinary meaning of the term, would improperly read “tasks and data” into the claim, add an improper negative limitation that would also read “central server or master node” into the claim, and exclude a preferred embodiment. D.I. 269, at 29–33, 35–37. As another example, Mr. Bone relies on ACS's incorrect construction of the “configured to” claim requirements in including each GPU sold by NVIDIA in his damages base regardless of whether the GPU was used with hardware and software that meets all the claim limitations. Ex. C, ¶ 40. Once ACS's constructions are rejected, Mr. Bone's damages analysis collapses entirely.

Second, Mr. Bone's apportionment analysis commits basic methodological errors. Ex. C, ¶¶ 176–196. While Mr. Bone's primary apportionment theory is discussed here, the errors noted below permeate each of Mr. Bone's three apportionment theories and all three should be excluded.

(A) Mr. Bone improperly starts with the entire market value of the accused NVIDIA GPUs. The entire market value of a product cannot be used to calculate damages unless the claimed invention is “the sole driver for demand” of the product. *Power Integrations, Inc. v. Fairchild Semiconductor*, 904 F.3d 965, 978–79 (Fed. Cir. 2018). Here, the “peer-to-peer” communications Mr. Bone associates with NVLink are far from “the sole driver” of demand for NVIDIA's GPUs. The primary function of NVIDIA's Graphics Processing Units is to perform *processing*, not to communicate between chips. The NVIDIA GPU datasheets note many features driving customer demand, emphasizing processing power, memory, electrical power, and NVIDIA's “Multi-Instance GPU” feature before it mentions NVLink. *See* Ex. F (A100 Datasheet). Moreover, the GPU is just one part of a massively complex “full stack” platform solution resulting from decades of research by thousands of NVIDIA employees. In the hardware layer of the stack, NVIDIA's GPUs are combined with hundreds of other components from NVIDIA and dozens of vendors to make GPU boards, baseboards, servers, and datacenters. NVIDIA also provides many layers of software, including dozens of libraries with massive collections of commonly used functions and more than 150 software development kits tailored for specific industries and applications. Mr. Bone's reliance on NVLink thus cannot possibly support using the entire market value of the GPUs.

(B) Mr. Bone ignores important costs in his allocation. Mr. Bone's calculations use only the cost of goods sold and wholly ignore important operating costs, including substantial research and development costs, which are necessary to NVIDIA's ability to develop, sell, and support its products. This renders Mr. Bone's opinions unreliable as they are untethered to the actual facts of the case. *Apple v. WiLan*, 25 F.4th 960, 974 (Fed. Cir. 2022) (“the expert's methodological and factual errors . . . render[ed] his opinion untethered to the facts of this case”).



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(C) Mr. Bone’s “GPU to NVLink apportionment” improperly captures NVIDIA’s contributions to the accused products. “[D]amages awarded for patent infringement must reflect the value attributable to the infringing features of the product, and no more.” *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, 809 F.3d 1295, 1301 (Fed. Cir. 2015). Mr. Bone performs a “GPU to NVLink apportionment” that seeks to allocate 23% of the value of NVIDIA GPUs to the ’768 patent alone. His allocation is fundamentally unreliable because he considers only a single reason customers buy the accused NVIDIA products (application speed) and addresses only one contributor to that speed (NVLink interconnect speed), failing to properly allocate for the value of everything else that goes into the accused products, including key features like processing power, memory bandwidth, and NVIDIA’s full software stack, none of which relates to the ’768 patent. And even with respect to NVLink interconnect speed, Mr. Bone’s damages calculation assigns zero value to all of NVIDIA’s work in making its own proprietary NVLink interconnect, allocating all the value to ACS. But the ’768 patent teaches nothing about how to make an interconnect fast, reliable, power-efficient, or secure. Nor does it teach how to use an interconnect to extend NVIDIA’s own proprietary on-chip memory operations between chips. All that technology is attributable to NVIDIA. Mr. Bone also fails to account for advances over time. The claimed invention allegedly was made in 2005–2006, but dramatic advances in technology have occurred since then and, as described in subsection (A) above, NVIDIA’s cutting-edge products are the result of continuous innovation by thousands of engineers for decades. Mr. Bone fails to account for any of these advances and contributions by NVIDIA.

(D) Courts routinely reject conclusory assertions that the parties would agree to a 50/50 split. Ignoring the massive disparity in NVIDIA’s contributions to the accused products versus the patent’s alleged contribution, Mr. Bone offers the bald assertion that the parties would agree to a 50/50 profit split. Ex. C, ¶ 204. Courts routinely reject this approach. *Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1331–33 (Fed. Cir. 2014); *Bayer Healthcare LLC v. Baxalta Inc.*, 16-cv-1122, 2019 WL 330149, at *8 (D. Del. Jan. 25, 2019), aff’d 989 F.3d 964, 983–84 (Fed. Cir. 2021).

Third, Mr. Bone’s opinions are unreliable for many other reasons. As examples: Mr. Bone focuses on the wrong product, a single GPU by itself, even though NVLink (which Mr. Bone assumes embodies the claimed technology) is an “interconnect” outside the GPU that connects multiple GPUs (Ex. C, ¶ 52); he fails to account for the scope of any claim limitation other than “peer-to-peer architecture,” and for that limitation, he relies on ACS’s incorrect proposed construction; he incorrectly claims to use the average selling price in his second apportionment theory (Ex. C, ¶ 184); he identifies a lower apportionment rate, but fails to use it without explanation (*id.*, Table 12, ¶ 203); he improperly includes sales in his royalty base without evidence the products entered the United States (Ex. C, ¶¶ 90–92); he misstates the patent’s expiration date (Ex. C, ¶ 146); he sets aside the market evidence of comparable license agreements solely on the basis that the agreements “did not identify any patents specifically referencing the NVLink functionality” (Ex. C, ¶¶ 102–28); he ignores the impact of NVIDIA’s existing license to three of ACS’s patents; and he is not qualified to opine on the technical benefits of NVLink over PCIe (Ex. C, ¶¶ 176–96) and Dr. Singh offers no such opinions in his report.

NVIDIA thus requests leave to file a *Daubert* motion to exclude Mr. Bone’s unreliable opinions.



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Respectfully,

/s/ Brian A. Biggs

Brian A. Biggs (DE Bar No. 5591)



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TABLE OF EXHIBITS

Exhibit	Description
A	U.S. Patent No. 10,333,768
B	Opening Report of Dr. Jaswinder Singh on Infringement (Feb. 6, 2022)
C	Opening Report of John R. Bone (Feb. 6, 2022)
D	SET Datasheet
E	Deposition Transcript of Zvi Tannenbaum (Aug. 26, 2022)
F	NVIDIA A100 GPU Datasheet
G	U.S. Provisional Patent App. Nos. 60/813,738
H	ACS' Supp. Responses to Interrogatory No. 1 (Sept. 8, 2022)
I	Agenda feo [sic] meeting with Dean on [REDACTED] (ACS_NVIDIA_007796)
J	Hand-Written Pages (ACS_NVIDIA_001449)
K	Scoping Document (ACS_NVIDIA_001369)
L	2005.10.26 Email to D. Dauger (ACS_NVIDIA_001546)
M	Scoping Notes (ACS_NVIDIA_001372)
N	2005.12.05 Dauger Research Invoice (ACS_NVIDIA_001382)
O	2006.01.23 Dauger Research Invoice (ACS_NVIDIA_001383)
P	2006.01.23 Email to Z. Tannenbaum (ACS_NVIDIA_001548)
Q	2006.01.31 Dauger Research Contract (ACS_NVIDIA_001221)
R	2006.02.02 Email to K. Sinclair (ACS_NVIDIA_001582)
S	2006.04.06 Email to Z. Tannenbaum (ACS_NVIDIA_001451)
T	2006.04.12 Email to Z. Tannenbaum (ACS_NVIDIA_001458)
U	2006.04.17 Email to D. Dauger (ACS_NVIDIA_001462)
V	2006.05.08 Email to Z. Tannenbaum (ACS_NVIDIA_001465)
W	2006.06.31 Email to Z. Tannenbaum (ACS_NVIDIA_001468)
X	2006.05.01 Email to D. Dauger (ACS_NVIDIA_001472)

CERTIFICATE OF SERVICE

I, Brian A. Biggs, do hereby certify that on this 6th day of March 2023, I caused a true and correct copy of the foregoing to be served upon the following counsel of record via email.

John W. Shaw
Karen E. Keller
Nathan R. Hoeschen
Emily S. DiBenedetto
SHAW KELLER LLP
I.M. Pei Building
1005 North Market Street, 12th Floor
Wilmington, DE 19801
Telephone: (302) 298-0700
jshaw@shawkeller.com
kkeller@shawkeller.com
nhoeschen@shawkeller.com
edibenedetto@shawkeller.com

Jon W. Gurka
Brian Claassen
Cheryl Burgess
KNOBBE, MARTENS, OLSON & BEAR, LLP
2040 Main Street, 14th Floor
Irvine, CA 92614
Telephone: (949) 760-0404
jon.gurka@knobbe.com
brian.claassen@knobbe.com
cheryl.burgess@knobbe.com

Karl W. Kowallis
KNOBBE, MARTENS, OLSON & BEAR, LLP
1155 Avenue of the Americas, 24th Floor
New York, NY 10036
Telephone: (212) 849-3024
karl.kowallis@knobbe.com

Ben K. Shiroma
KNOBBE, MARTENS, OLSON & BEAR, LLP
1925 Century Park East, Suite 600
Los Angeles, CA 90067
Telephone: (310) 551-3450
ben.shiroma@knobbe.com

/s/ Brian A. Biggs

Brian A. Biggs (DE Bar No. 5591)